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A new species in *Cymbidium* sect. *Cyperorchis* (*Orchidaceae* : *Epidendroideae* : *Cymbidieae*), newly recorded for Borneo

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Summary. *Cymbidium kinabaluense* is described as a new species, so far known to occur only on Mount Kinabalu in Sabah, Malaysia, in northern Borneo. It belongs to Subgenus *Cyperorchis*, hitherto not recorded for Borneo, and corresponds to section *Cyperorchis*, one of five sections recognized in that subgenus. The differences between *C. kinabaluense* and *C. sigmoideum* J.J. Smith, the most closely related species which occurs in Sumatra and Java, are elucidated.

The monograph on *Cymbidium* by Du Puy & Cribb (1988) recognized three subgenera: Subgen. *Cymbidium* (with four of its six sections represented in Borneo), Subgen. *Jensoa* (with two of its four sections represented in Borneo), and Subgen. *Cyperorchis* (with five sections and not hitherto known to occur in Borneo). The chief character used to distinguish Subgen. *Cyperorchis* from the other two subgenera is the fusion of the base of the lip to the base of the column in the flower. In Subgen. *Cymbidium* and *Jensoa* the lip, though attached to the column base, is not further fused to it for any noticeable length.

The new species described here has this special character of Subgen. *Cyperorchis*; in addition, like the other species of this subgenus, it has narrow, incurved hyaline leaf margins, relatively large flowers, and a pair of pollinia which are cleft behind. Within the subgenus, the new species here corresponds to section *Cyperorchis*, characterised by linear-elliptic leaves with their bases covering a compressed-ovoid pseudobulb; an inflorescence that arises from near the base of the pseudobulb; flowers less than 4 cm across; a lip with two callus ridges that are not apically fused; a glabrous or slightly hairy

column; an anther-cap with a backwards-pointing beak; and clavate to quadrangular pollinia.

Description of the new species

Cymbidium kinabaluense *K.M. Wong & C.L. Chan* **sp. nov.** *C. sigmoideo J.J. Smith affinis sed inflorescentia 78-83 cm longa, 21-23 flores ferenti, pedicelo ovarioque olivaceo, sepalis petalisque luteo-viridibus et brunneo-marroninis maculatis et tinctis, columna breviore, 1.8-2 cm longa, labello basin 1/4 longitudinem columnae connata differt. Typus: C.L. Chan & Jamili Nais, s.n. 20 January 1993, Sabah, Mount Kinabalu, montane forest at 1700 m alt., epiphytic near ground in moss cushion, in shade (holotypus SAN; isotypus SNP).*

A perennial, epiphytic herb. Pseudobulbs to 5 cm long, 2.5 cm across, not inflated, hidden within the leaf bases, with about 12 leaves and 3 cataphylls that persist as fibrous sheaths. Leaves linear or strap-shaped, to 102 cm long, 1.3-1.8 cm broad, acute, articulated 9-10 cm from the pseudobulb.

Inflorescence from the base of the pseudobulb, 78-83 cm long; pendulous, peduncle bearing 9-10 overlapping, acute sheaths to 17 cm long; rhachis 31-38 cm long, with 21-23

Fig. 1. Flower of *Cymbidium kinabaluense*.

flowers; bracts 3-4 mm long, ovate, acute. Flower about 3.5 cm across, pendulous to horizontal; pedicel and ovary dark olive green, with a slight tinge of maroon-brown near the top, slightly glossy; sepals and petals pale yellowish green, matt, adaxially spotted and blotched rather uniformly throughout with maroon-brown; dorsal sepal abaxially with maroon-brown spots and streaks especially in the lower 2/3, glossy at the base; lateral sepals abaxially with maroon-brown spots and streaks almost restricted to the longitudinal half nearer the dorsal sepal; petals abaxially with pale maroon-brown spots; lip darker yellowish green with maroon-brown bars, the mid-lobe with pale maroon-brown stripes, the callus ridges yellowish green; column yellowish green flushed with maroon-brown at the apex, the sides and lower surface of the base with a few maroon-brown spots; anther-cap cream, base rather whitish; pollinia dark yellow; stipes translucent cream.

Pedicel and ovary 2.5-3.2 cm long. Dorsal sepal 3.1-3.3 cm long, 1 cm broad, narrowly lanceolate-obovate, acute, concave, porrect, closely covering the column; lateral sepals similar, falcate, spreading. Petals about 2.9-3 cm long, 0.4-0.5 cm broad, ligulate, acute, curved. Lip short, 3-lobed, basally fused to the base of the column for 4-5 mm, forming a short sac; side-lobes about 6 mm broad, broadly triangular-falcate, erect and closely flanking the column, glabrous, front margin S-shaped and minutely and irregularly dentate; mid-lobe small, 7.5-9 mm long, 2-2.5 mm broad, ligulate, acute, glabrous, strongly recurved; callus ridges 2, subparallel, not apically fused, glabrous. Column 1.8-2 cm long, S-shaped in profile, glabrous, the basal 1/4 fused with the base of the lip; anther-cap and viscidium with a short, backwards-pointing rostellum; pollinia clavate, 1-1.5 mm long, cleft, on a narrow rectangular viscidium without hair-like processes from the lower corners.

The species is illustrated in Figs. 1 and 2.

Comparisons with other species

C. kinabaluense appears to be most related to *C. sigmoideum* J.J. Smith within the section *Cyperorchis*, in having glabrous flowers and a narrowly ligulate mid-lobe to the lip which is strongly recurved. The other three species in this section have hairs at least at the centre of the mid-lobe, at the apices of the callus ridges and at the lower part of the column; and the mid-lobe is either cordate-elliptic (*C. cochleare* Lindl. and *C. whiteae* King & Pantling) or basally broadly ligulate and apically expanded into two broad lobes (*C. elegans* Lindl.).

The significant characters that distinguish *C. kinabaluense* include an inflorescence which is 78-83 cm long (much longer than that in *C. sigmoideum* which is only about 25 cm long); more flowers (21-23, compared to 4-14 in *C. sigmoideum*); larger flowers with the dorsal sepal 3.1-3.3 cm long and petals 2.9-3 cm long (in *C. sigmoideum* the dorsal sepal being 2.7-2.9 cm long and petals 2.4-2.5 cm long); a longer (2.5-3.2 cm) pedicel and ovary (that in *C. sigmoideum* 1.9-2.3 cm long); and a very short column which is 1.8-2 cm long (the shortest for any species in the section, that in *C. sigmoideum* 2.8-2.9 cm long and that in the other species mostly exceeding 3 cm long).

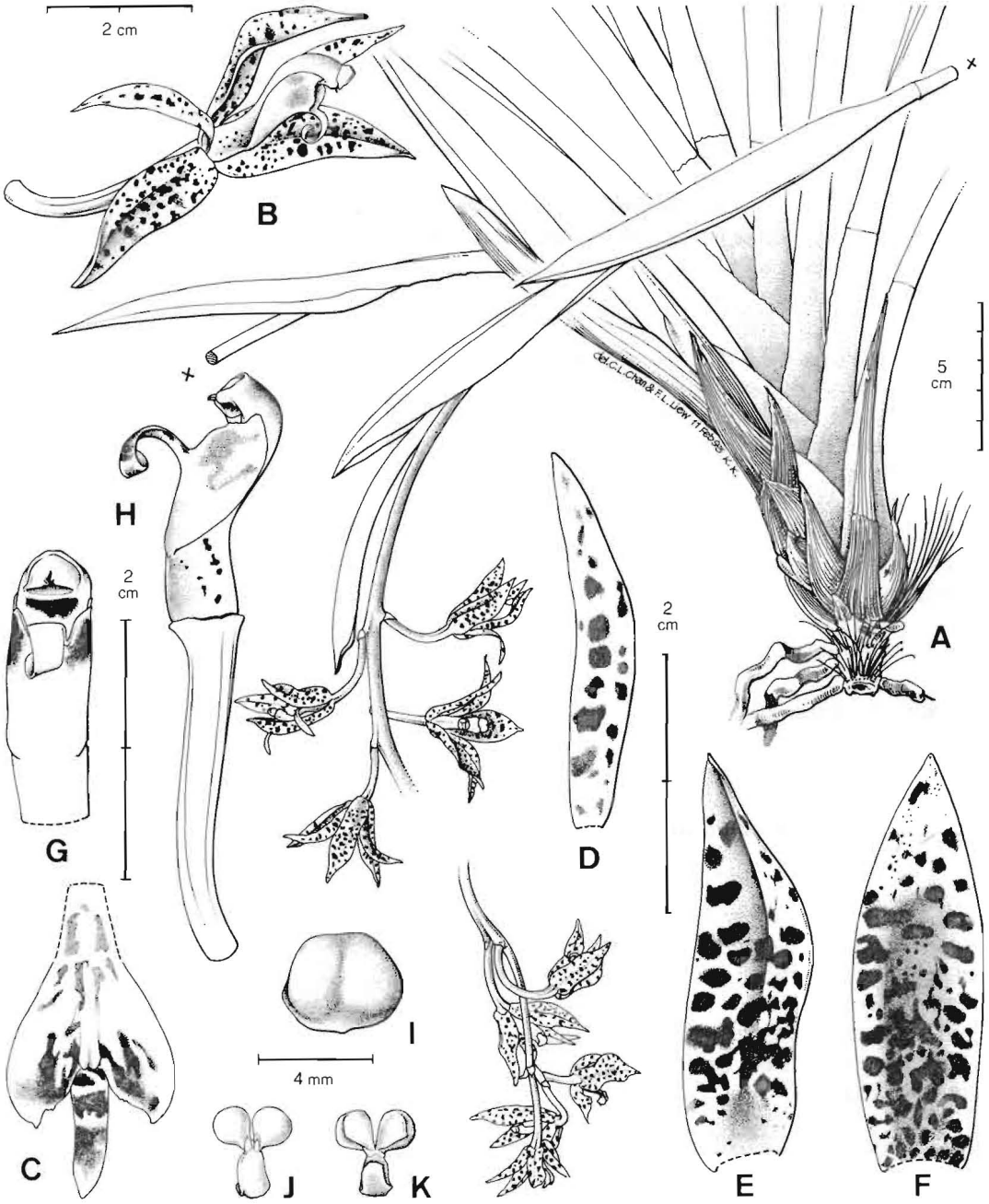

Fig. 2. *Cymbidium kinabaluense*. **A**, Plant. **B**, Flower. **C**, Lip, spread out. **D**, Petal. **E**, Lateral sepal. **F**, Medium sepal. **G**, Column, abaxial view. **H**, Column with lip, ovary and pedicel, profile. **I**, Anther cap. **J**, Pollinia, front view. **K**, Pollinia, back view. All from the holotype, *Chan & Jamili s.n.* 20 Jan. 1993, Mount Kinabalu.

A key to the species thus far known in *Cymbidium* section *Cyperorchis* is as follows:

1a. Flower parts glabrous. Lip mid-lobe narrowly ligulate, only 2-2.5 mm broad.

2a. Inflorescence 78-83 cm long. Dorsal sepal 3.1-3.3 cm long, petals 2.9-3 cm long. Column short, 1.8-2 cm long. Pedicel and ovary 2.5-3.2 cm long .... *C. kinabaluense*

2b. Inflorescence around 25 cm long only. Dorsal sepal shorter, 2.7-2.9 cm long; petals shorter, 2.4-2.5 cm long. Column longer, 2.8-2.9 cm long. Pedicel and ovary shorter, 1.9-2.3 cm long ..... *C. sigmoideum*

1b. Flowers hairy at least at the centre of the mid-lobe, apices of the callus ridges, and near the base of the column. Lip mid-lobe shaped differently and broader.

3a. Mid-lobe with a ligulate base and apically expanded into two broad lobes ..... *C. elegans*

3b. Mid-lobe cordate-elliptic, without a narrowed base.

4a. Base of lip fused to column for about 2 mm. Lip hairy only at the centre of the mid-lobe ..... *C. cochleare*

4b. Base of lip fused to column for about 5 mm. Lip ventrally hairy all over side-lobes and mid-lobe ..... *C. whiteae*

Thus far, *C. elegans* and *C. cochleare* are known over the Nepal - south China region, and *C. whiteae* only in Sikkim (Du Puy & Cribb 1988). *C. sigmoideum* is known only in Sumatra and Java (Du Puy & Cribb 1988; Comber 1990), and *C. kinabaluense* appears restricted to northern Borneo.

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